

Effect of bleaching on stability, consumer acceptability, and nutrition of Canola

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What's in Canola?





Minor Components (<1%) in Canola

Antioxidants

- Tocopherols (vitamin E)
- Carotenoids (xanthophylls, lutein)



*Bleaching can reduce or remove all

Pro-Oxidants

- Water
- Transition metals (Fe, Cu)
- Polar lipids
- Chlorophyll (chlorophyll a, chlorophyll b)



Bleaching

- "Improves" oil color
- Involves use of activated earth (bentonite) to strip:
 - Chlorophylls
 - Carotenoids
 - Soaps

PENNSTATE

- Phospholipids
- Aroma & flavor?
- Health-promoting minor components?
- Relatively quick process
- Done under vacuum







Can We Skip Bleaching?

Potential Upside

- Cost & energy savings
- Retain characteristic flavor and aroma
- Retain color
- Retain healthy, bioactive components?
- Marketing

Potential Downside

- Limited shelf life
- Retain characteristic
 flavor and aroma
- Retain color
- Limitations for direct use in engines and high heat culinary applications (frying)



Covy Moore/Rocky View Publishing FBC Foods president Keith Jones shows off the company's new Vibrant Cold Pressed Canola Oli at Calgary Co-op in Airdrie, Feb. 3.

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Local farmer-owned plant produces unrefined canola oil

Feb 06, 2012 06:00 am | By Stacle Snow | Rocky View Weekly

A farmer-owned plant near Airdrie is producing a new whole food oil made from Alberta-grown canola.

"We're pleased to partner with retail and food service partners to bring this exciting new local product to Canadian families," said Fame Biorefinery Corporation (FBC) Foods president Keith Jones.

FBC Foods produces the oil.

"Over 33 million litres of olive oil is imported into Canada each year, and with Vibrant Cold Pressed Canola Oil, we're looking to regain market share for Canadian farmers," he said.

Vibrant Cold Pressed Canola Oil is made from canola seed selected directly from Alberta farms, then cold pressed and gravity filtered to produce pure, whole oil, he added.

"Vibrant Cold Pressed Canola Oil is made without the conventional canola refining processes (solvent extraction at high heat, then degumming, bleaching and deodorizing)," Jones said.

"This produces a natural, flavourful and colourful oil that replaces extra virgin olive oil in salad dressings, dips, sauces, marinades and moderate temperature cooking."





Canadian Sunshine In a Bottle!

Our Cold Pressed Canola Oil is crafted from fresh, pure Canadian Canola seed, with no additives or harsh processing. A whole oil, containing its natural colour, flavour and healthy compounds. Ideal for bread dips, salad dressings, marinades, sauces and baking. Produced in Western Canada, from top grade Canola seed grown by local Farmers Latest News

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4 Bottle Pack

Contains 4 x 500 ml glass bottles in cardboard shipping pack, 11 "L x 5"W x 5"H, Wt. 3.75 kg, Price \$50.00 plus shipping and handling, plus GST

(~\$95/gallon)





Preliminary Data



Color Index = $1.29(A_{460}) + 69.7(A_{550}) + 41.2(A_{620}) - 56.4(A_{670})$



Preliminary Data







Preliminary Data

	Unrefined	Refined
Color	Green/Dark Yellow	Pale Yellow
Aroma (positive)	Nutty	Neutral
Aroma (negative)	Metallic?	Neutral
Free fatty acids	High	Low
Oxidative stability	High	Low

- Need to address high free fatty acid values due to lipase (enzyme) activity preheating step (75 – 100 C) before pressing?
- Untrained sensory panel identified nutty aroma notes in unrefined PSU oil is this acceptable or preferable to consumers?
- Oxidative stability (i.e., predicted shelf life) of unrefined PSU oil was higher than refined, commercial oil – will compare with refined PSU oil in future and measure other oxidation markers





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